NOTES

THE Council of the Royal Society of Edinburgh has recommended for the four vacancies in their list of Foreign Honorary Members the names of Donders of Utrecht, Asa Gray of the United States, Janssen of Paris, and Listing of Göttingen.

AT the meeting of the Royal Society on Monday last the Keith Prize was presented to Prof. Heddle of St. Andrew's for his papers on the Rhombohedral Carbonates and the Felspars of Scotland.

OUR readers will be glad to hear the latest news from Madeira, that Prof. Clifford is certainly better, and able to be carried out in the sunshine.

THE following are the lecture-arrangements at the Royal College of Surgeons for the present season :—Prof. Parker commences a series on Monday, "On the Evolution of the Vertebrata," to be continued on Mondays, Wednesdays, and Fridays, to March 3. On the same days of the week, from March 5 to 24, Prof. Flower will lecture "On the Comparative Anatomy of Man," in continuation of his course of last year. In June, Prof. Jonathan Hutchinson will give six lectures: "On Certain Diseases of the Eye, Skin, and Joints which are produced through the Influence of the Nervous System;" and in the same month Mr. B. T. Lowne, F.R.C.S., will give three lectures "On the Physiology of the Nervous System," in continuation of his course of last year.

AT the General Monthly Meeting of the Royal Institution of Great Britain on Monday, Dr. Warren De La Rue, F.R.S., was elected Secretary of the Institution, and Dr. William Spottiswoode, Pres. R.S., was elected Manager.

WE learn from the *Journal de St. Pétersbourg* that the epidemic in Astrakan was discussed before the Russian Medical Society at a gathering where 800 were present. It seems that the people call it the plague, though it is not officially so known. M. Botkine mentioned that at the time of the last plague at Moscow in 1770, the question was discussed whether it was the true plague or a marked form of typhus, and he added that the diagnosis of the various forms of typhoid infection in Russia is very difficult. He believes that the spots on the body and the quickness with which death follows indicate that the present epidemic of Vetlianka is not a European malady. Dr. Nicolaïew, describing the symptomatology of the plague, said that its action is both physical and moral, and that to impose quarantine often helps rather than retards the spread of the disease by the fear it awakens.

ADMIRAL MOUCHEZ will soon resume, at the Paris Observatory, the series of *soirées scientifiques* which had been commenced by Leverrier. The first will be given at the end of the present month or the beginning of March. M. Wolf will lecture on astronomy.

THE second International Meteorological Congress will be opened at Rome on April 14 next. At the same time an exhibition of meteorological instruments will take place, and the Italian Government invites home and foreign institutions and private men of science to participate in the Congress.

WE regret to announce the death of Herr Georg Peter Winther, of Copenhagen, an eminent Danish naturalist, well known through his excellent treatises on the fishes of Denmark. He died on January 14 at the early age of thirty-five years.

A CELEBRATION of the fourth centenary of the introduction of the art of printing into Leipzig will take place during this year and will be coupled with an exhibition comprising all branches of the graphic arts.

THE little town of Hohenstein in the Erzgebirge will celebrate the centenary of one of its most celebrated sons on April 26, 1880. The eminent naturalist and philosopher, Gotthilf Heinrich von Schubert was born at Hohenstein, in 1780, and died at Munich on July 1, 1860. It is intended to erect a monument to his memory and to establish a school under the name of Schubert Institution.

A BOTANICAL society is in course of formation at Strassburg. Its object, apart from a special study of the botany of the Reichsland, is to provide all the higher schools of the country with complete herbaria.

WE hear that the coal-mining experiments at Kaiping in the north of the Chinese province of Chihli are proceeding successfully. The boring has reached a depth of nearly 500 feet, passing through six seams of good coal, one of which is three feet and another eight feet thick. It is proposed to bore to a depth of 550 feet.

A CORRESPONDENT asks us whether the "microphone electromagnetique," said to be invented by Dr. Frank, rue St. Honoré, Paris, is really a useful invention for deaf persons, or not? We have not yet heard of any microphone which in any way assists the deaf.

ON January 30, when the National Assembly of Versailles, was voting on a successor to Marshal MacMahon, M. Paul Bert, a representative of Yonne, was lecturing on Claude Bernard and his works, in the large hall of the Sorbonne, before more than 2,000 persons, belonging mostly to the high schools and learned professions. The only reference made to political matters by the lecturer related to the funeral of Claude Bernard, which took place at the expense of the Government. M. Paul Bert reminded his hearers that it was the first time such an honour had been paid to a man of science. Up to that time they had been exclusively reserved for men who had earned their reputation on the battle-field, or who belonged by blood to the reigning family.

IN his lecture on Claude Bernard, M. Paul Bert narrated a singular stratagem which was invented by Bernard during the last Franco-German war, and might be utilised without difficulty, under similar circumstances. It was proposed to re-victual Paris, which was strictly blockaded by German forces. A large number of cattle had been collected, waiting for an opportunity to cross the German lines. But a difficulty was to silence these animals, as their cries would attract the attention of the enemy. Claude Bernard proposed to practise upon them the section of the nerve which enables them to emit their usual cries. The operation is so easy that it could be executed in a few seconds by an ordinary butcher. None of the animals appeared to suffer in any way by the mutilation which had made them mute. But the military movement proved a failure, and for other causes the re-victualling could not take place.

SOME of our readers may be interested to know that there exists in Berlin an exceedingly efficient and comprehensive scientific agency, that of Friedländer und Sohn. Not only do they issue, at short intervals, catalogues of works and papers in all departments of science, published all over the world, but they undertake to assist individuals and associations in carrying out almost any scheme of a scientific kind. To any one, *e.g.*, anxious to pursue a particular line of research, they will furnish a methodical list of all the best researches that have been published on the subject; they assist museums, libraries, &c., in

forming collections of scientific specimens and books, and are, in short, the guides, philosophers, and friends of all desirous of accomplishing almost any purpose connected with science. Their "Bücher-Verzeichniss," No. 293 (Physics and Chemistry), is marvellously complete; nothing of any value, published in any country in any form, seems to have escaped the compiler. Friedländer und Sohn have been at this work for twenty-eight years, and their catalogues issued during that time must be of great interest and value to the student of science.

THE *Times* Geneva correspondent, under date February 3, telegraphs that a singular and almost unprecedented meteorological phenomenon has been observable during the past ten or fifteen days in many parts of Switzerland. While the temperature in the valleys and plains has been low, the waters covered with ice, and snow resting on the ground, a warm south wind has prevailed in the uplands and among the higher Alps, where the streams remain unfrozen and the snow has almost disappeared. This has been especially the case in Uri, Schwytz, the Grisons, Neuchatel, and the Bernese Oberland. Mr. Coolidge, an Englishman, with four guides, made the ascent of the great Schreckhorn last week at four o'clock in the afternoon, when the thermometer on the summit of the mountain marked several degrees above freezing-point. The Oberland Alpine Club propose to buy some of the ibex forming part of the collection of the late King Victor Emmanuel, for the purpose of re-stocking the mountains of Switzerland.

A SHOCK of earthquake was felt at Foochow and Amoy on December 17.

A FINE meteor was observed at Prague and many other towns and villages of Bohemia on January 11, at 7.30 P.M. It appeared in the north-western part of the sky and moved towards the south-west, disappearing with a loud report, and leaving a long luminous train behind. The colour of the meteor was white at first and reddish violet at the end; the duration of the phenomenon was ten seconds.

THE project of a canal between the Rhine and the Maas seems at last to approach realisation. The city of Crefeld has declared its readiness to pay the sum of 500,000 marks (25,000*l.*) towards it, and it is confidently hoped that now both the Prussian as well as the Dutch Government will grant the necessary additional funds.

WE believe that the changes in the Government of the French Republic will be favourable to the development of education all over the land. The extension of public instruction is to be a part of the programme of the Ministry, which will not be published before our present impression will be in the hands of our readers.

ANOTHER of the London gas companies has been trying to show what gas-lighting can be made if only the public are willing to go to the necessary expense. On Friday last the Gas Light and Coke Company lit up part of Regent Street in much the same way that the Phœnix Company recently did the Waterloo Road. The result is described as admirable. By the use of Sugg's improved form of burner, a light framework, and the proper adjustment of suitable reflectors, a light was obtained very much brighter than that to which we have been so long accustomed. We believe if some enterprising company undertook to light one of our principal thoroughfares for some months at their own expense by this method, they would most likely be rewarded by a demand on the part of the public that the new form of light should be made general and permanent. Some comparative experiments which have been made at Westgate-on-Sea with the Jablochkoff candles have led the experimenters to the conclusion that this form of electric lighting is much more expensive than gas, and is surrounded with so many difficulties that no amount of improvement is likely to fit it for adoption. It is rumoured that an experiment is likely to be made in lighting the reading-room of the British Museum with the electric light.

THE Austrian Tourist Club has offered two prizes of 100 and 50 florins respectively for the best and next-best monograph of a mountain group or single mountain from the district of the Austrian Alps. Particulars respecting the competition can be learnt upon application to the Committee of the Club, Gusshausstrasse, Vienna.

CONTINUING his researches on the scintillation of stars, M. Montigny has examined the influence of atmospheric temperature and pressure, moisture in the air, fogs, snow, different winds, &c. His observations are detailed in a recent number (11, of 1878) of the Belgian Academy's *Bulletin*. The general conclusion to which the various facts point is thus stated:—It is the presence of water in greater or less quantity in the atmosphere, that exerts the most marked influence on scintillation, and which most modifies the character of it, either when the water is dissolved as vapour in the air, or when it falls to the surface of the ground in the liquid state, or in the solid state, in the form of snow."

IN spectacles designed purely for amusement there occur from time to time exhibitions of muscular dexterity and strength which are highly interesting to the physiologist. *La Nature* mentions that there was lately to be seen at the Hippodrome, in Paris, a gymnast, named Joignerey, who discharged a piece of cannon, not supporting it on the shoulder, as others have done, but like a rifle. The same man, suspended by his legs from a trapeze, raised with his teeth a horse and its rider. About the same time visitors to the skating theatre were astounded by the feats of the juggler Treniz, who entwined himself in a long streamer wound as an aerial helix, a feat which has been peculiar to the Japanese; and, with cubes of wood thrown into the air and caught, sketched the rudiments of unstable architectural forms, modifying their arrangement with unfailing dexterity and certainty.

AT a recent meeting of the French Physical Society M. Benoit showed a thermo-regulator of his invention, based on the increase of maximum tension of a saturated vapour with the temperature. A small vessel, containing methylic ether, is placed in the stove whose temperature is to be kept constant; it communicates with a mercury manometer, the movements of which, again, serve to regulate the flow of the coal-gas which heats the stove. M. Benoit has thus been able to maintain a temperature of 85° C. constant to within one-tenth of a degree. The apparatus owes this rare precision to the smallness of its mass and the rapidity with which the tension of the vapour increases with the temperature. The author showed that after having regulated it for the surrounding temperature, one had merely to blow rapidly on the small vessel of liquid in order to produce the extinction of the gas-burners governed by the apparatus.

SEVERAL Parisian photographers have tried to use electric light for obtaining *clichés*, and have been wonderfully successful. MM. Pierre Petit and Lebert are the most prominent amongst them.

SCARCELY a month passes but we receive the first number of a new journal devoted to science. Last week we referred to a new Italian *Nature*, and we have before us several other journals which are at least new to us. *L'Athénæum Belge*, which has entered on its second year, devotes a portion of its space to science, as well as to literature and art; it seems to us to be well conducted. The first number of the second year of *Le Monde*

de la Science et de l'Industrie is extremely satisfactory, containing much and varied information both in pure and applied science. The *Telephone Journal*, of which also No. 1 of vol. ii. lies before us, we have seen for the first time. It seems to be an organ of the Chicago branch of the Bell Telephone Company, and contains mostly a list of persons and firms telephonically connected with each other through the Central Office in Chicago. The list of names is a long one, and as the "calls" of the Company are stated to average 5,500 daily, we infer they are doing a paying business. We have already referred to the Spanish *Crónica Cientifica*; Nos. 25 and 26 are exceedingly creditable, containing a fair selection from the scientific work being done both in Spain and in other countries. Altogether science has taken a prominent and influential place in the journalism of the day.

"THE Magic Lantern Manual," by Mr. W. J. Chadwick, is a plentifully illustrated little volume likely to be of great service to those, and they are many, who work with this useful apparatus in one or other of its many forms. Warne and Co. are the publishers. Equally useful in its own department is Dr. Sylvester Marsh's little manual on Section Cutting, a practical guide to the preparing and mounting of sections for the microscope, special prominence being given to the subject of animal sections. Messrs. Churchill are the publishers.

SOME excavations made at Merten, near Bolchen, in German Lorraine, have given remarkable results. The remains of a gigantic equestrian statue were found, of which the figure of the rider is particularly well preserved. Investigation of other remains tend to show that the origin of the statue is Roman; parts of mosaic floors, &c., have also been discovered.

A NEW agricultural school is about to be established at Meissen, Saxony.

THE cultivation and consumption of opium continues to increase largely in China, but notwitstanding this extended cultivation, the Persian drug is extensively consumed on account of its comparative cheapness. In a report from Amoy it is stated that the poppy is cultivated in the neighbourhood with the knowledge and sanction of the mandarins; but so far the production of opium appears in no way to affect the foreign produce, as, from the imperfect system of manufacture practised by the natives, they are unable to produce a drug in any way approaching the foreign article, either in quality or flavour. As regards the habit of using opium, Mr. Alabaster says: "It is now so general that I assume there is little probability of much increase in the demand unless the population of Formosa increase, where, as the use of opium is almost a necessity of life in the plantations there, to counteract the malarious influences of the climate there must be a larger export thither. Nor is it to be desired that the consumption should become greater, for although I cannot agree with those who so vigorously denounce the trade as a source of every evil, and am inclined to think from observation that many more lives are annually saved by its moderate use than are sacrificed to inordinate indulgence in it, an increase would now rather mark the spread of the abuse of the drug, than of its employment as a stimulant to counteract the lowering effects of climate, and damp and ill-drained houses."

THE additions to the Zoological Society's Gardens during the past week include two Macaque Monkeys (*Macacus cynomolgus*) from India, presented respectively by Mr. E. E. Barclay and Mr. Eardley Holt; a Weeper Capuchin (*Cebus capucinus*) from South America, presented by Mr. W. Fridrick; two White-Fronted Capuchins (*Cebus hypoleucus*) from South America, presented by Mr. Geo. Backhouse; a Short-Tailed Wallaby (*Halmaturus brachyurus*) from West Australia, presented by Mr. G. Bowen; a Grey Ichneumon (*Herpestes griseus*) from India, presented by Mr. B. Baverstock; a Golden-Naped Amazon (*Chrysotis auripalliata*) from South America, presented by Mrs. H. A. Hopkins; three Canada Geese (*Bernicla canadensis*) from North America, presented by Mr. W. Bonorton; a Black-Winged Pea-fowl (*Pavo nigripennis*) from Cochin China, presented by the Hon. A. S. G. Canning, F.Z.S.; a Giraffe (*Camelopardalis giraffa*) from Nubia, deposited; a Golden-Fronted Parrakeet (*Brotogerys tuipara*), an American Tantalus (*Tantalus loculator*), a Rough Terrapin (*Clemmys punctularia*) from South America, four River Jack Vipers (*Vipera rhinoceros*) from West Africa, received in exchange.

FOREST GEOGRAPHY

SOME months ago Prof. Asa Gray delivered to the Harvard University Natural History Society a lecture on Forest Geography and Archæology, which has been published in two recent numbers of the *American Journal of Science*. The lecture referred mainly to the forests of North America, and in speaking of these, Prof. Gray referred to them not exactly as they are to-day, but as they were before civilised man had materially interfered with them. In the first part of the lecture Prof. Gray showed how the distribution of forests is mostly dependent on the distribution of moisture, and thus explained the great difference which exists in this feature between the eastern and western States. The Atlantic "forest primeval," he stated, a few generations ago covered essentially the whole country from the Gulf of St. Lawrence and Canada to Florida and Texas, and from the Atlantic to beyond the Mississippi. This Atlantic forest of the United States is one of the largest and almost the richest of the temperate forests of the world. Then going westwards from the Mississippi come prairies and open plains; beyond these is the Rocky Mountains, forest again, but only in narrow lines and patches; but after passing the Sierra Nevada, the western rim of the basin, we come to what is in some respects the noblest and most remarkable forest in the world. In the long valley of California it almost disappears again, to resume its sway in the Coast Ranges, with altered features, some of them not less magnificent and of greater beauty. Thus there are two forest-regions in North America—an Atlantic and a Pacific, each dependent on the oceans which they respectively border. Prof. Gray then goes on to show how the distribution and nature of these forests are dependent mainly on moisture and temperature, proceeding to prove that the difference in the composition of the Atlantic and Pacific forests is not less marked than that of the climate and geographical configuration to which the two are respectively adapted.

"With some very notable exceptions, the forests of the whole northern hemisphere in the temperate zone (those that we are concerned with) are mainly made up of the same or similar *kinds*. Not of the same species; for rarely do identical trees occur in any two or more widely separated regions. But all round the world in our zone, the woods contain *pines* and *firs* and *larches*, *cypresses* and *junipers*, *oaks* and *birches*, *willows* and *poplars*, *maples* and *ashes*, and the like. Yet with all these family likenesses throughout, each region has some peculiar features, some trees by which the country may at once be distinguished."

With regard to the Pacific forests the greater part of the Atlantic trees are conspicuous by their absence.

"For example, it has no magnolias, no tulip-tree, no papaw, no linden or basswood, and is very poor in maples; no locust-trees—neither flowering locust nor honey locust—nor any leguminous tree; no cherry large enough for a timber-tree, like our wild black cherry; no gum-trees (*Nyssa* nor *Liquidambar*), no sorrel-tree, nor kalmia; no persimmon, or bumelia; not a holly; only one ash that may be called a timber-tree; no catalpa, or sassafras; not a single elm, nor hackberry; not a mulberry, nor planer-tree, nor maclura; not a hickory, nor a beech, nor a true chestnut, nor a hornbeam; barely one birch tree, and that only far north, where the differences are less striking. But as to coniferous trees, the only missing type is our bald cypress, the so-called cypress of our southern swamps, and that deficiency is made up by other things. But as to ordinary trees, if you ask what takes the place in Oregon and California of all these missing kinds, which are familiar on our side of the continent, I must answer, nothing, or nearly nothing. There is the *Madroña* (arbutus) instead of our kalmia (both really trees in some places); and there is the California laurel